Toothbrush.

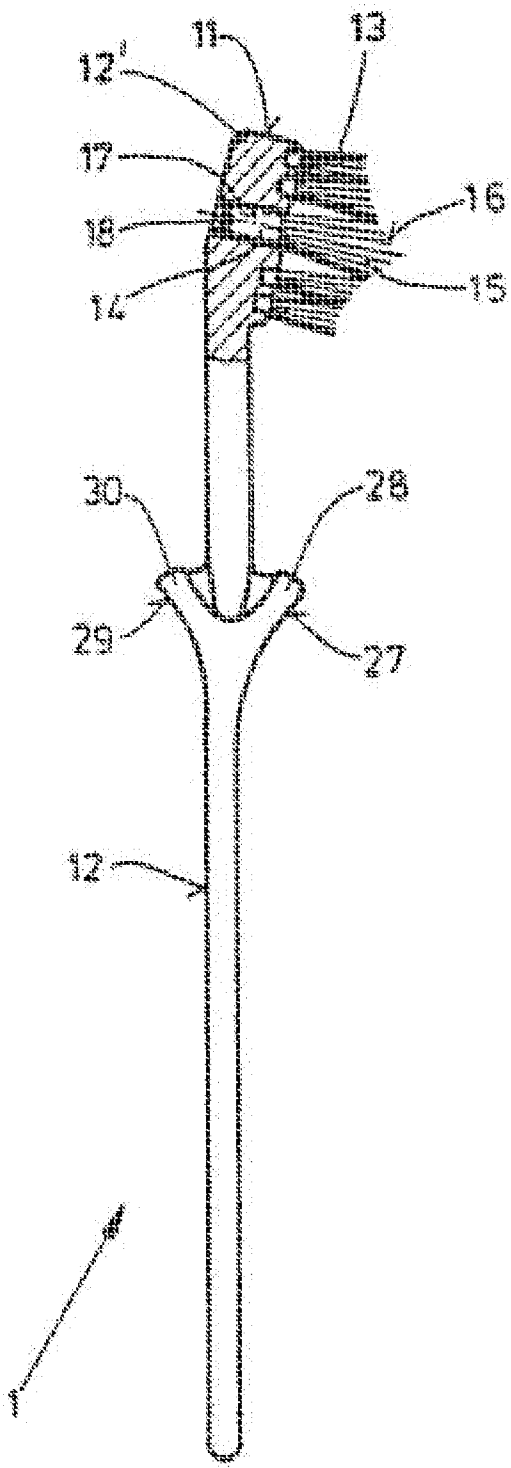
Bibliographic data

Publication number:	DE3744630 (A1)
Publication date:	1989-07-13
Inventor(s):	PAETZOLD CHRISTOPH DR [DE] +
Applicant(s):	PAETZOLD CHRISTOPH [DE] +
Classification:	
- international:	*A46B7/02; A46B7/06; A46B9/04;* A46B7/00; A46B9/00; (IPC1-7): A46B15/00; A46B7/04; A46B9/04
- European:	A46B7/02; A46B7/06
Application number:	DE19873744630 19871231
Priority number(s):	DE19873744630 19871231

Abstract not available for DE 3744630 (A1)
Abstract of corresponding document: **EP 0322562 (A1)**

In a toothbrush (1) having a brush head (11) and a handle piece (12), moulded onto said brush head, the brush head (11) having a conically projecting or concavely curved tip (16), the bristles (15) of the brush head (11) forming the tip (16) are mounted on a separate bristle bearer (14) which is inserted in the brush head (11), is exchangeable and is held so as to be adjustable in height. By this design, a toothbrush (1) is provided which is designed in accordance with the anatomy of a set of teeth and can be used universally for cleaning the interdental gaps and the chewing fissures with simple handling. Above all, it is achieved that the central part of the brush head (11) can easily be exchanged, can be readjusted in the case of any wear, and can also be adapted without problems, if appropriate automatically, to different interdental gaps. Furthermore, good handling is provided and an even distribution of force can be achieved.

FIG. 1



The invention refers to a toothbrush with brush head and one at this formed Griffstück, whereby the brush head exhibits a managing, tapered formed or concave curved tip.

By the DE-PS 8 89 135 is a toothbrush of this type known. The integral formed brush head is attached with this embodiment with the help of a bayonet fixing replaceable at the Griffstück, in order to make a frequent change possible. Although by the bristles of the brush head too pointedly rising after the center the tooth cleaning is not opposite the conventional toothbrushes, whose bristles in a plane end, become improved and facilitated, an optimum impact to obtain nevertheless. The few bristles arranged in the center of the brush head become in relative short time worn or bent, so that a cleaning of the chewing or tooth furrows and the interdental spaces is already possible no longer after short use. With use of these known toothbrushes must thus, so that the interdental spaces and the chewing furrows sufficient cleaned to become and so that the Kariesbildung effective it is advanced toward often the entire brush head renewed become or it becomes in purchase taken that those, how this when using bristles ending from toothbrushes also in a plane the case is become despite intense tooth flash by deposits tooth damages caused.

Object of the invention is it to create a toothbrush which is more useful the anatomy of dentures corresponding designed and universal for cleaning the interdental spaces like also the Kaufissuren with simple handling. Above all however achieved is to become that the central portion of the brush head light replaced, with one possibly. Wear placed behind and also at different individual interdental space-deep problem-free if necessary automatic adapted will can. The other a always good handling is to have to be obtained given and an uniform Kraftverteilung with universal use.

According to the invention becomes this with a toothbrush of the aforementioned genus that those are the tip formed bristles of the brush head in a separate achieved by the fact, bristle carrier mounted inserted into the brush head, which is replaceable and held adjustable in the height.

In addition, the bristle carrier can be here in simple embodiment in a threaded bore incorporated into the brush head axial adjustable held, it is possible to keep the bristle carrier more adjustable against the force of a spring axial in the brush head.

This can become in the manner accomplished, mounted in which the bristle carrier is by means of a spring supported at the brush head held or preferably replaceable at a bolt, which is arranged against the force of a compression spring slidable in the brush head.

With a toothbrush provided with a rotary body as brush head it is mounted to use the bristle carrier central in these. With a toothbrush provided with a rectangular formed brush head against it the bristle carrier should be central in its front portion arranged or it should two or several bristle heads in axial direction one behind the other with one for instance a width of tooth face corresponding distance arranged become.

With a toothbrush provided with a rotationally symmetrically formed brush head the brush head can exist this central thorough brush-inertial of in the head of the Griffstückes rotatable stored ring and after an other embodiment, which is drehfest with the ring connected and in the head of the Griffstückes replaceable and held adjustable in its level.

The bristle carrier should exhibit here to the turningfixed connection with the ring a guide piece, with as a multi-Kant a formed or with a taking along-flat or a such. equipped outer casing-flat is provided, which is in a continuous associated recess of the ring in axial direction guided.

Convenient one is it the other to thread the bristle carrier on that the bristles of opposite side which is threaded into a threaded bore incorporated into the head of the Griffstückes.

In addition, the bristle carrier can consist of a part, it is possible to insert the bristles of the bristle carrier more replaceable into the guide piece.

It is favourable furthermore, the ring by means of, a preferably circumferential rest before jump formed at this or the head of the Griffstückes, which spreads the ring or which is einrastbar into an annular groove planned in the head to keep more rotatable in into this incorporated trough.

In order to let the bristles with an everywhere almost uniform high force affect the teeth, the brush head should be to longitudinal axis of the Griffstückes a bottom angle alpha of 10 to 25 DEG, a preferably bottom angle alpha from 15 DEG to the Griffstück inclined arranged.

In addition it is to the same purpose mounted, the Griffstück on that the brush head course-turned inside and on the opposite outside with with distance to the brush head of arranged finger camps formed by formed distant bars to provide in each case.

The bristles of the brush head and/or. the ring and the bristle carrier should bundle-like in each case arranged be, also the bristles of the bristle carrier in their flexibility can become hard formed as the bristles of the bristle head and/or. the ring.

With use of an according to the invention formed anatomical formed toothbrush is it possible, entire dentures particularly to always clean both the interdental spaces and the chewing furrows and the central Längsfissuren in one satisfactory manner. Also an adaptation is possible to different interdental space-deep without difficulties. If those become the tips formed bristles of the brush head at a separate bristle carrier, which is replaceable and held adjustable in the height, mounted, then the bristle carrier can become individual on the respective interdental space-deep, which is more distinct with older patients due to the tooth bone decrease usually than with younger people, adapted and/or. this can adapt to automatic to different deep chewing furrows. The tips of the bristles can thus to to the deepest locations of the interdental spaces, without pressure, arrive, in order to remove deposits. The other the wear at the bristles of the bristle carrier can become over a longer period of time by placing behind balanced, also the bristle carrier is to be replaced with wear light, so that a long life, without with longer use the cleaning intensity suffers, is given. And there the brush head opposite the Griffstück inclined arranged and this with two finger camps to be provided can, is a good handling and an uniform transmission ensured.

In the drawing some embodiments are the according to the invention formed toothbrush shown, which is subsequent in detail explained. Here shows:

Fig. 1 a toothbrush in side view, provided with a höhenverstellbar arranged bristle carrier,

Fig. 2 to 4 different embodiments of the brush head of the toothbrush after Fig. 1,

Fig. 5 and 6 the arrangement of bristle carriers in toothbrushes with a rectangular brush head,

Fig. 7 an other embodiment of one with an adjustable bristle carrier provided toothbrush in a side view,

Fig. 8 the brush head of the toothbrush after Fig. 7 in an enlarged representation

Fig. 9 and 10 with the toothbrush after Fig. 7 used bristle carrier in two different embodiments,

Fig. 11 the brush head of the toothbrush after Fig. 7 in plan view,

Fig. 12 the toothbrush after Fig. 7 with the cleaning of a chewing furrow and

Fig. 13 the Zanbürste after Fig. 7 with the cleaning of interdental spaces.

In Fig. 1 represented and with 1 designated anatomical formed toothbrush consists of a rotationally symmetrically formed brush head 11 and one at this mounted Griffstück 12. The brush head 11 is provided here with a central tip 16, in order to be able to clean both chewing furrows and interdental spaces thorough.

The tip 16 of the brush head 11 is 15 formed, which are 14 mounted at a separate by bristles, bristle carrier inserted into the head 12 min of the Griffstückes 12. In addition min is a threaded bore 17 incorporated, into those the bristle carrier 14, which is provided on the back with a key opening 18, is screwed in into the head 12. In this way it is light possible by twisting to change the layer of the bristle carrier 14 and thus its bristles 15 opposite the other to put forward or take back into the head 12 min of the Griffstückes 12 inserted bristles 13, so that made without difficulties an adaptation can become to different deep chewing furrows or interdental spaces.

At the Griffstück 12 are on its interior and outside by bars 28 and/or. 30 formed finger camps 27 and/or. 29 formed. Thus a good transmission and an even distribution of the applied force are given on the teeth which can be cleaned.

With the embodiment after Fig. 2 is the bristle carrier 14 min by means of a compression spring 19 at the head 12 min of the Griffstückes 12 held. The spring 19 is 21 provided in addition with an approach in form of a pin, to which the bristle carrier 14 min is more replaceable attached. The tip 16 of the bristles 15 adapts thus automatic different deep chewing furrows or interdental spaces, so that a too high pressing, by those and. And. Injuries caused to become to be able, avoided is. And there the head 12 min a central bore 20 exhibits, is the compression spring 19 also light to be cleaned.

In accordance with Fig. 3 is the bristle carrier 14 min of replaceable at a bolt 22 mounted, which is in the bore 20 min of the head 12 min axial slidable guided. The tip 23 of the bolt 22 intervenes in a corresponding recess of the bristle carrier 14 min.

For the resilient support of the bristle carrier again a compression spring 19 min, which pushes at the head 12 min as well as with the bolt 22 connected plate away 23 min, serves 14 min. With to strong contact pressure thus the bristle carrier 14 min and thus the tip 16 of the brush head 11 can evade.

In accordance with Fig. 4 is the bolt 22 is replaceable mounted at which the bristle carrier 14 min, by means of a plate 24, which is glued or welded, at the head 12 min of the Griffstückes 12 held. The plate 24 is provided in addition with a central through bore 25. At the plate 24, into the other recesses 26, in order to be able to make a good cleaning of the brush head 11, incorporated is, supports themselves also a compression spring 19 min min off, which holds the bristle carrier 14 min in the front end position. The bristle carrier 14 min cannot only evade thus with to high contact pressure in axial direction, but also lateral.

The Fig. 5 and 6 it is to be taken that also toothbrushes can be provided with a rectangular designed brush head 11 min with replaceable and adjustment barn bristle carriers 14. In accordance with Fig. 5 is the bristle carrier 14 central in the front portion of the brush head 11 min arranged, with the embodiment after Fig. 6 is several bristle carriers 14 provided, which are in longitudinal direction with one for instance a width of tooth face corresponding distance arranged one behind the other.

Into the Fig. likewise min inserted bristle carrier 34 of a brush head 31 and a Griffstück 32 and one in its head piece 32, whose bristles 35 form a concave curved surface of revolution 40 with a tip 36 together with the other bristles 33, consists 7 and 8 represented and anatomical formed toothbrush designated with 1 min. In this way it is possible, like this in the Fig. 12 and 13 shown is to clean both the chewing furrows 3 of the teeth 2 and the spaces 4 between the teeth 2 thorough.

The bristle carrier 34 is again in axial direction adjustable arranged. In order to be able to manage this with this embodiment, a ring is 37 rotatable inserted into a trough 38 incorporated into the head piece 32 of the Griffstückes 32, which is drehfest with the bristle carrier 34 connected. In addition formed guide piece 42, which reaches a recess through 41 of the ring 37, is as well as a spigot 43 formed and into the head piece 32 min of the Griffstückes 32 is central to the trough 38 a threaded bore 39 incorporated at the bristle carrier 34 in as a multi-Kant. The support of the ring 37 in the head piece 32 min becomes by means of at this formed circumferential rest before jump 44 accomplished, which spreads from the outside the ring 37.

By twisting of the ring 37 thus the bristle carrier can become 34, since this is screwed in drehfest with the ring 32 connected, but in the threaded bore 39, in its level adjusted. With a wear of the bundle-like arranged bristles 35 of the bristle carrier 34 these can be placed behind thus in a

simple manner, so that always also distinct interdental spaces or chewing furrows, by which the tip 36 formed bristles 35 of the bristle carrier 34 cleaned to become to be able. Also a worn bristle carrier can become within a short time interchanged.

The brush head 31 is with the embodiment after the Fig. 7 and 8 a bottom angle alpha from 15 DEG to longitudinal axis the A of the Griffstückes 32 inclined arranged, thus the bristles 33 and 34 rectangular stand to the tooth surfaces which can be cleaned. The other two finger camps are 47 and 49 mounted, those by formed bars 58 and/or at the Griffstück 32 on its interior and outside. 60 formed are. In this way both with cleaning the chewing furrows 3 and with cleaning the interdental spaces 4 an uniform pressure applied can become.

The bristle carrier 34 can in accordance with Fig. in addition, 9 from a part exists, it is possible, like this in Fig. 10 shown is to attach the bristles 35 min of the bristle carrier 34 to the guide piece 42 min also can the bristles 33 bundle-like inserted into the ring 37, like this the Fig. 11 to infer is, in its flexibility soft of the formed its as the bristles 35 bristle carrier 34, in order to obtain and avoid by softer 37 bristles arranged in the ring 33 injuries of the gums a different cleaning effect in this way.

Of course also electric operated toothbrushes can in accordance with one in the Fig. 1 to 11 embodiments shown formed become.

1. Toothbrush with brush head and one at this formed Griffstück, whereby the brush head exhibits a managing, tapered formed or concave curved tip, characterised in that those the tip (16; 36) formed bristles (15; 35) the brush head (11; 31) at a separate, into the brush head (11; 31) inserted bristle carrier (14; 34) mounted are, which is replaceable and held adjustable in the height.

2. Toothbrush according to claim 1, characterised in that of the bristle carriers (14) in one into the brush head (11) incorporated threaded bore (17) axial adjustable held is.

3. Toothbrush according to claim 1, characterised in that of the bristle carriers (14 min) against the force of a spring (19, 19 min, 19 min min) axial adjustable in the brush head (11) held is.

4.Zahnbürste according to claim 3, characterised in that of the bristle carriers (14 min) by means of one at the brush head (11) supported spring (19) held is.

5. Toothbrush according to claim 3, characterised in that of the bristle carriers (14 min) preferably replaceable at a bolt (22, 22 min) mounted is, which is arranged against the force of a compression spring (14 min, 14 min min) slidable in the brush head (11).

6. Toothbrush after or the several claims a 1 to 5, characterised in that with one with a rotary body as brush head (11) provided toothbrush (1) the bristle carrier (14, 14 min) central in this inserted is.

7.Zahnbürste after or the several claims a 1 to 5, characterised in that with one with a rectangular formed brush head (11 min) provided toothbrush of the bristle carriers (14, 14 min, 14 min min) in its front portion arranged is.

8. Toothbrush after or the several claims a 1 to 5, characterised in that with a toothbrush of two or several bristle carriers (14, 14 min), provided with a rectangular formed brush head (11 min), in axial direction with one for instance a width of tooth face corresponding distance arranged are one behind the other.

9.Zahnbürste after or the several claims 1 to 6, characterised in that with one with a rotationally symmetrically formed brush head (31) provided toothbrush (1 min) the brush head (35) of one in the head (32 min) of the Griffstückes (32) rotatable stored ring (37) and this central thorough bristle carrier (34 min) consists, which is drehfest with the ring (37) connected and in the head (32 min) of the Griffstückes (32) replaceable and in its level adjustable held.

10. toothbrush according to claim 9, characterised in that of the bristle carriers (34) to the turningfixed connection with the ring (37) a guide piece (42) exhibits, with as a multi-Kant a formed or with a taking along-flat or a such. equipped outer casing-flat is provided, which is in a continuous associated recess (41) of the ring (37) in axial direction guided.

11. Toothbrush according to claim 9 or 10, characterised in that of the bristle carriers (34) on that the bristles (35) opposite side (43) is threaded, which is threaded into one into the head (32 min) of the Griffstückes (32) incorporated threaded bore (38).

12.Zahnbürste after or the several claims 9 to 11, characterised in that of the bristle carriers (34) from a part exists or that the bristles (35 min) of the bristle carrier (34) more replaceable into the guide piece (42) more insertable are.

13. Toothbrush after or the several claims 9 to 12, characterised in that the ring (37) by means of one at this or at the head (32 min) of the Griffstückes (32) of formed, preferably circumferential rest before jump (44), which the ring (37) spreads or which into one in the head (32 min) intended annular groove is einrastbar, in one into this incorporated trough (38) rotatable held is.

14.Zahnbürste after or the several claims 9 to 13, characterised in that the brush head (31) to longitudinal axis (A) of the Griffstückes (31) a bottom angle alpha from 10 to 25 DEG, a preferably bottom angle alpha from 15 DEG to the Griffstück (31) inclined arranged is.

15. Toothbrush after or the several claims a 1 to 14, characterised in that the Griffstück (12; 32) on that the brush head (11; 31) course-turned inside and on the opposite outside in each case with one with distance to the brush head (11; 31) arranged by formed bars (28; 30; 48; 50) formed finger camps (21; 29; 47; 49) is provided.

16. Toothbrush after or the several claims a 1 to 15, characterised in that the bristles (13; 33) the brush head (11) and/or. the ring (37) and the bristle carrier (14; 34) bundle-like in each case arranged is.

17. Toothbrush after or the several claims a 1 to 16, characterised in that the bristles (15; 35) the bristle carrier (14; 34) in its flexibility hard formed is as the bristles (13 min; 33) the brush head (11) and/or. the ring (37).

Nummer: 37 44 630
Int. Cl.⁴: A 46 B 9/04
Anmeldetag: 31. Dezember 1987
Offenlegungstag: 13. Juli 1989

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FIG. 1

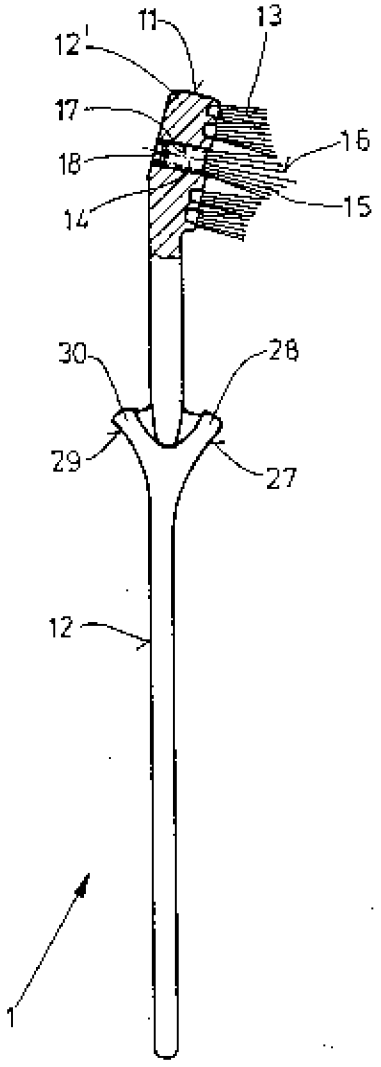

FIG. 2

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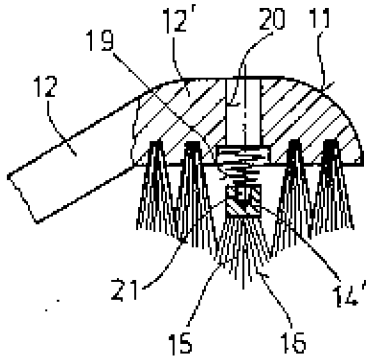

FIG. 3

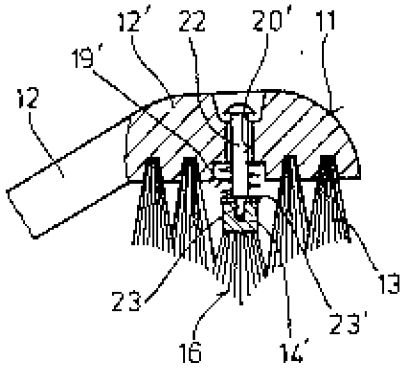

FIG. 4

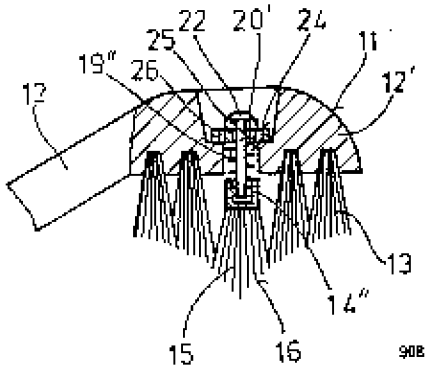

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FIG. 5

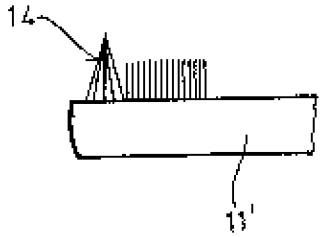

FIG. 6

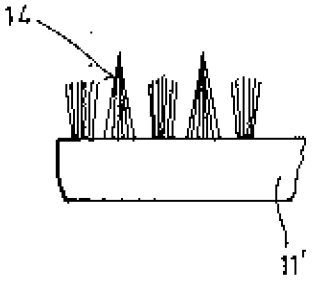

FIG. 7

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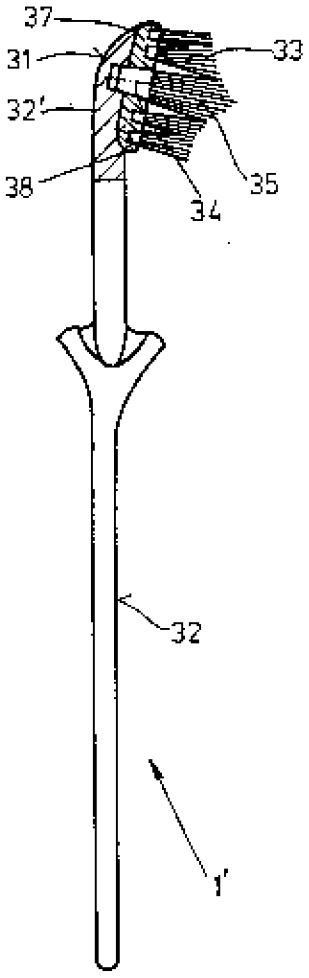

FIG. 8

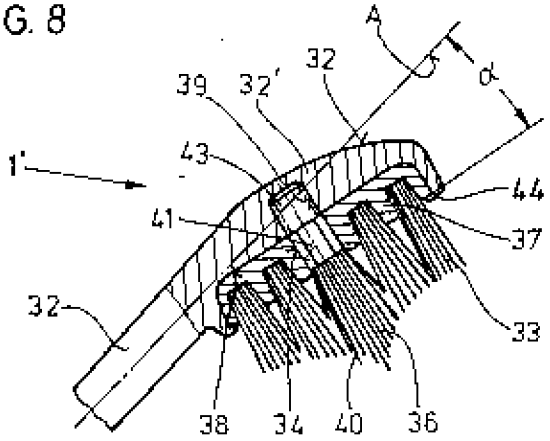

FIG. 9

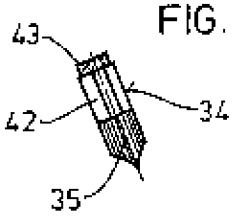

FIG. 10

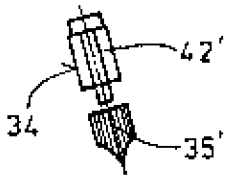

FIG. 11

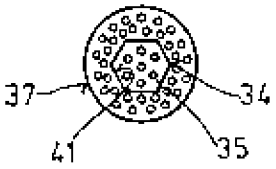

FIG. 12

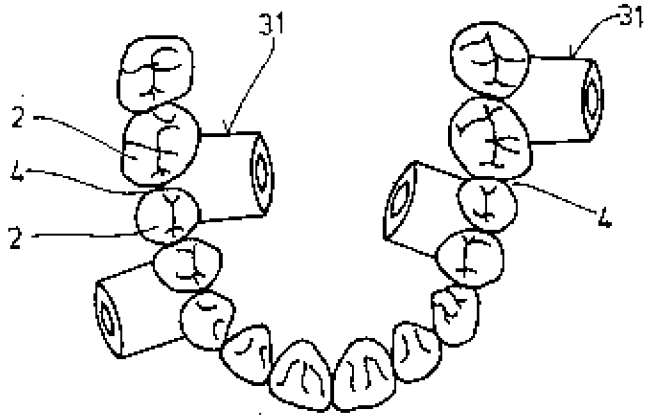

FIG. 13